

<b>Laser Safety</b>	<b>Manual</b>	<b>ESHQ</b>
	<b>Document</b>	<b>TFC-ESHQ-IH-C-54, REV A-0</b>
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<u>Ownership matrix</u>	<b>USQ # N/A-4</b>
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## 1.0 PURPOSE AND SCOPE

(7.1.1, 7.1.2, 7.1.3, 7.1.4)

This procedure sets requirements and responsibilities for the purchase and use of lasers, and laser systems in all Washington River Protection Solutions, LLC (WRPS) managed facilities and operations. This procedure does not apply to lasers controlled by the Mission Support Alliance (MSA) laser safety program for safeguards and security purposes.

A laser safety officer (LSO), appointed by the Industrial Hygiene (IH) Programs manager, has the authority and responsibility for establishing, monitoring, and enforcing all WRPS laser safety rules.

This procedure does **not** apply to: 1) lasers embedded in consumer products (such as laser printers and optical disk scanning devices) that are both completely enclosed and require no access by users at any time.

## 2.0 IMPLEMENTATION

This procedure is effective on the date shown in the header.

## 3.0 RESPONSIBILITIES

1. Users of all lasers, or laser systems, shall ensure the following expectations are met:
  - All lasers to be used on site must be labeled and classified according to the ANSI Z136.1 Classification system.
  - Manufacturer's instructions for the safe operation of their lasers must be followed.
  - No type of lasers should ever be deliberately directed at a person, vehicle or aircraft.
  - Always use lasers with the minimum power classification that can safely perform the task. Avoid using class 3b or 4 lasers, whenever possible.
  - Servicing, or calibrating of embedded lasers systems which could expose the laser beam to a person, must be performed under the controls of a laser use permit, if the exposed laser would then be classified as Class 3B or Class 4.

2. The following responsibilities apply only to users of Class 3B or Class 4 laser or laser systems:
- A laser use permit is required to install, operate or service lasers to reduce or eliminate the possibility of employee exposure to laser radiation and to other hazards associated with the operation of lasers.
  - An initial optician examination is required for laser users. Periodic eye re-examinations of employees using lasers are not required.
  - Many accidents involving lasers result from non-beam hazards. To ensure that these hazards are adequately identified and addressed, Safety personnel shall perform necessary hazard evaluations including evaluation of laser generated air contaminates.
  - Lasers and laser systems may only be operated, calibrated and serviced by LSO authorized employees or vendors.
  - Laser users and laser supervisors must be trained, by the laser safety officer or have documented training acceptable to the LSO.
  - Appropriate personal protective equipment, approved by the laser safety officer, is required to be worn whenever there is potential for exposure to a Class 3B or Class 4 laser beam.
  - Spectators are not allowed into designated laser controlled areas (LCA) without LSO approval.

### 3.1 Establishing Laser Installations

The line managers shall ensure that the installation of laser equipment meets the following standard criteria for all Class 3B and Class 4 lasers:

- One person shall act as the laser supervisor and ensure that each installation is operated safely according to this procedure, the laser use permit, and any guidance of the laser safety officer.
- The laser supervisor must have the same training as a laser operator, but is not required to have the optician examination unless they are likely to be exposed to the beam hazard.
- That all purchase requisitions for Class 3b or Class 4 lasers and associated safety equipment are submitted to the laser safety officer for approval.
  - Before installation of any laser equipment, the laser safety officer is contacted and a laser use permit is approved.
  - Laser installation modifications are approved by the laser safety officer and the appropriate engineering organization prior to such changes being initiated.

- Any accident involving a laser is promptly reported to the laser safety officer (in addition to other notifications required by occurrence reporting procedures).

### **3.2 Classifying and Controlling Laser Installations** (7.1.2)

The laser safety officer shall ensure that the installation and use of laser equipment meets the following standard criteria:

- All lasers used on-site must have the manufacturer's ANSI Z136.1 classification labels present
- The LSO will prepare a Laser Safety Permit for all Class 3B and Class 4 lasers containing appropriate control measures from ANSI Z136.1 for each laser installation. When appropriate, alternate control measures that provide equivalent protection may be specified and implemented with the approval of the laser safety officer
- Before working with class 3b or 4 lasers, and promptly after any suspected eye exposure, ensure personnel who may be exposed to laser radiation complete a laser eye examination
- That controls for non-beam laser hazards are specified and implemented, such as:
  - Fire and electrical hazards
  - Laser generated air contaminants
  - Collateral and plasma radiation
  - Explosion hazards (high pressure arc lamps, filament lamps, and capacitor banks)
  - Compressed gases
  - Laser dyes (some dyes are carcinogenic)
  - Noise and other ergonomic problems
  - Ultraviolet and radio frequency radiation.

### **3.3 Supervising Laser Operations**

Those supervising laser operations for Class 3b or Class 4 lasers shall ensure that the use of laser equipment meets the following standard criteria:

- That a written Laser Use Permit has been applied for and approved by the LSO, including laser-specific safety requirements are prepared and applied
- That the Laser Use Permit controls, including warning signs specified in the permit, are implemented whenever the laser is in use

- Only authorized laser users may be present when the laser is in use.

#### **4.0 PROCEDURE**

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|----------------------|---|
| Industrial Hygienist | 1. For class 3B and 4 lasers, complete TOC Laser Use Permit (A-6006-156). |
|                      | 2. Submit the permit to the Laser Safety officer.                         |
| Laser Safety Officer | 3. Review and sign the laser permit.                                      |
|                      | 4. Submit the signed permit to the IH Records Custodian.                  |

#### **5.0 DEFINITIONS**

No terms or phrases unique to this procedure are used.

#### **6.0 RECORDS**

The following records are generated during the performance of this procedure:

- TOC Laser Use Permit (A-6006-156).

The record custodian identified in the Company Level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM\_DC-C-02.

#### **7.0 SOURCES**

##### **7.1 Requirements**

- 7.1.1 American Conference of Governmental Industrial Hygienists, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices (2016).
- 7.1.2 ANSI Z136.1- , “Safe Use of Lasers” 2014.
- 7.1.3 10 CFR 851, “Worker Health and Safety Program.”
- 7.1.4 TFC-PLN-47, “Worker Safety and Health Program.”

##### **7.2 References**

- 7.2.1 TFC-BSM-IRM\_DC-C-02, “Records Management.”